

Amendments to the Specification:

Page 1, amend the paragraph beginning on line 3 to read as follows:

This application is a continuation of U.S. application Serial No. 09/934,594, filed August 23, 2001, now US Patent No. 6,611,425, the subject matter of which is incorporated by reference herein.

Page 3, amend the paragraph beginning on line 10 to read as follows:

According to a second aspect of the present invention, there is provided an electronic apparatus that has a first housing having a semi-conductor device mounted therein; a second housing having a display device disposed therein, which second housing is pivotally supported on the first housing; a heat-receiving member held in thermal contact with the semi-conductor device; a heat-dissipating member held in thermal contact with an inner surface of the second housing; liquid-moving means located in the first housing so as to move a liquid medium between the heat-dissipating member and the heat-receiving member; and a tube interconnecting the heat-receiving member, the heat-dissipating member and the liquid-moving means, the second housing being made to have a surface temperature, as a value of temperature rise, that is maintained at not more than 25EC-25°C above the ambient temperature.

Page 3, amend the paragraph beginning on line 21 to read as follows:

According to a third aspect of the present invention, there is provided an electronic apparatus that has a first housing, having a semi-conductor device mounted therein; a second housing having a display device disposed therein, which second housing is pivotally supported on the first housing; a heat-receiving member

held in thermal contact with the semi-conductor device; a heat-dissipating member held in thermal contact with an inner surface of the second housing; and a tube connected to liquid-moving means for moving a liquid medium between the heat-dissipating member and the heat-receiving member, the liquid-moving means being operated to provide a liquid-circulating rate not less than ~~120 μL/SEC~~ 120μL/sec.

Page 4, amend the paragraph beginning on line 6 to read as follows:

The liquid-circulating flow rate brought about by the liquid-moving means is preferably not more than ~~1200 μL/SEC~~ 1200 μL/sec.

Page 4, amend the paragraph beginning on line 16 to read as follows:

The height of the liquid-moving means may be not more than ~~30MM~~ 30mm.

Page 11, amend the paragraph beginning on line 7 to read as follows:

The radiation area of the rear surface of the display case 2 is about 90000 mm² in the average portable electronic apparatus. The type of heat dissipation achieved in this portable electronic apparatus, that is provided with a cooling device using a liquid medium is natural convection and heat radiation both occurring from the rear surface of the display case 2. The thermal resistance relating to this heat dissipation is determined only by the area of the display case and is about ~~0.8ECAW~~ 0.8°C/W.

Page 11, amend the paragraph beginning on line 13 to read as follows:

On the other hand, the portable electronic apparatus is designed so that the upper limit of its temperature may be about ~~60EG~~ 60°C so as not to cause the

operator to feel uncomfortable when he touches the surface of the display case. In this case, the maximum temperature of the outside air is assumed to be ~~-35~~35°C; and, therefore, the temperature difference, which becomes the temperature rise value, is ~~-25~~25°C. Therefore, when the temperature rise value at the rear surface of the display case is ~~-25~~25°C uniformly over the entire area thereof, this establishes a limit for the amount of dissipation of heat from the rear surface of the display case, and the limit of the amount of heat dissipation is about 30W. On the other hand, the CPU 7 is designed so that the upper limit of its temperature typically may be ~~-95~~95°C, (that is, when this temperature exceeds ~~-95~~95°C, the CPU may be damaged), and so the cooling medium-circulating rate required for the cooling device is determined by the relation between the limit heat-dissipation amount of 30W and the upper limit temperature of the CPU.

Page 12, amend the paragraph beginning on line 3 to read as follows:

Fig. 3 schematically shows the heat-dissipation path of the cooling device, and the amount of liquid-circulating in this path will be described with reference to this figure. The following description is based on the assumption that the temperature of the outside air is ~~-35~~35°C (which is the upper limit of the outside air temperature in the environment of use).

Page 12, amend the paragraph beginning on line 8 to read as follows:

In Fig. 3, even in cases where the thermal resistance R1 between the CPU and the water-cooling jacket is ~~-0~~0°C, which is ideal, the upper limit temperature of the cooling medium liquid is ~~-95~~95°C, which is the same as that of the CPU. On the other hand, when heat is dissipated from the heat-dissipating pipe in an ideal

manner, the temperature of the cooling medium liquid drops to ~~35°C~~^{35°C}, which is the same as the outside air temperature. Namely, the maximum value of the temperature rise (liquid temperature TH-liquid temperature TL) of the cooling medium liquid is ~~60°C~~^{60°C}. Therefore, in a case where water is used as the cooling medium liquid, the circulating flow rate becomes 120 $\mu\text{L/sec}$ which is determined from the density of 998 KG/M³ and specific heat of 4180 J/KGK as to the water, and this circulating flow rate becomes the lower limit.

Page 12, amend the paragraph beginning on line 19 to read as follows:

On the other hand, in the case where a sufficient circulating flow rate is obtained (in which case it is assumed that the temperature rise defined by (liquid temperature TH-liquid temperature TL) of the cooling medium liquid is substantially ~~0°C~~^{0°C}), the maximum value of the sum of both the temperature difference between the CPU and the water-cooling jacket and the temperature difference between the heat-dissipating pipe and the outside air temperature becomes ~~60°C~~^{60°C}, and 10% of the maximum value (~~60°C~~^{60°C}) of this temperature difference sum is included as manufacturing and design errors.

Page 13, amend the paragraph beginning on line 3 to read as follows:

Namely, in a case where the temperature rise (liquid temperature TH-liquid temperature TL) of the cooling medium liquid is ~~6°C~~^{6°C}, the circulating flow rate is 1200 $\mu\text{L/sec}$. In other words, a sufficient circulating flow rate becomes not more than 1200 $\mu\text{L/sec}$; and, even when the cooling medium liquid is circulated at a flow rate larger than this value, the cooling performance thereof is kept almost saturated. On

the other hand, circulating the cooling medium liquid at a flow rate that is larger than this value merely requires the pump to have an excessively large capability, (that is, an increased size and an increased consumption of electricity), and this is worthless.

Page 13, amend the paragraph beginning at line 11 to read as follows:

This also can be appreciated from a consideration of the relation between the circulating flow rate and the temperature of the water-cooling jacket, as shown in Fig. 4. Fig. 4 shows the relation between the circulating flow rate and the temperature of the water-cooling jacket in the case where the amount of heat generated in the CPU is 30W, the outside air temperature is ~~35EG~~ 35°C, the heat-dissipating pipe has a length of 1.5 M and a flow passage area (cross-section) of 3 mm x 3 mm, and eight flow passages, each having a length of 30 mm, are located in the water-cooling jacket.